RADIO

GREAT DISCOVERY OF EDWIN H. ARMSTRONG

Arrangement by Which Local Plate Current Is Fed Back to Grid Circuit.

An ordinary three-electrode vacuum tube used as a detector in a circuit where the input is connected to the grid and the output taken from the plate circuit will give amplification of from 5 to 15. Adding to this amplifying action the stability of adjustment of the tube gave the tube preference over the crystal detector.

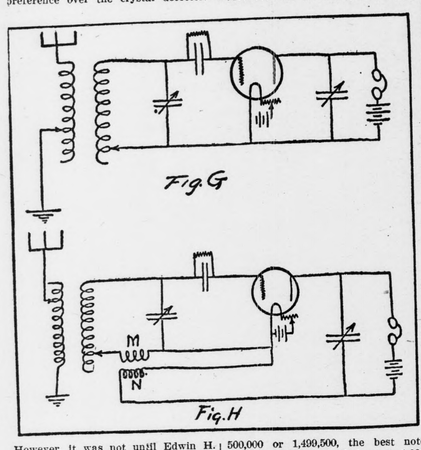

Fig. H

However, it was not until Edwin H. Armstrong made his great discovery of a circuit arrangement which fed back a portion of the large local plate current into the circuit through which the incoming signals arrived, thereby greatly amplifying the strength of the signal, that the vacuum tube reached its now recognized position of superiority as a detector of radio signals.

The circuit arrangement by which energy from the plate circuit of a three-electrode vacuum tube is fed back to the grid circuit is known by a different name, though, on account of the different names used and the different circuit arrangements used to accomplish the same results, amateurs are very apt to become confused. Some of the names given to the circuits which feed energy from the plate circuit to the grid circuit are "Feed Back," "Regenerative," "Tickler," "Tuned Plate" and "Ultra-Audion."

In Fig. F is shown a three-electrode vacuum tube with an alternator furnishing an alternating difference of potential to the grid circuit at T-T. The plate circuit of the tube is connected to a circuit containing an inductance L and a capacity C which together form a tuned circuit between the points X and Y. By adjusting the value of the variable con-

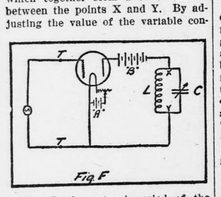

Fig. F

denser C, the natural period of the circuit between X and Y can be made to have the same frequency electrically as the alternating current supplied to the grid at T-T by the alternator. When this condition is reached the tuned circuit between the points X and Y becomes an infinite inductance in the external plate circuit. The potential variations between X and Y are now a maximum and are exact amplified reproductions of the potential variations applied to the grid circuit by the alternator.

Going back to the simple type of standard loose coupler hookup for a vacuum tube, we will have a circuit arrangement as shown in Fig. G. Suppose that the principle of the circuit of Fig. F be applied to the circuit arrangement of Fig. G. The result will be Fig. H. In Fig. H the inductance M has been placed in the secondary circuit and the inductance N has been placed in the plate circuit.

When the coils M and N are widely separated as Fig. G. An incoming radio signal impresses a small difference of potential on the grid of the tube in Fig. H which in turn liberates a large amount of energy in the plate circuit. As the coil N is brought nearer the coil M some of this plate circuit energy is transferred to the grid circuit. This reinforcement, electrically, of the incoming signal by energy transferred from the plate circuit to the grid circuit by the coupling between the two coils M and N, causes an increase in the energy liberated in the plate circuit. Coupling the two coils M and N closer and closer will cause greater and greater amplification of the incoming signal until a point is reached where the energy fed back from the plate circuit is just equal to the losses in the secondary circuit.

An increase in the coupling between the two coils M and N will cause the tube to oscillate. By changing the tuning of the secondary circuit, the frequency of the tube oscillations will be slightly different from the frequency of the incoming oscillations due to the received signals, and the beat note will be heard in the phones. The pitch of the beat note will be the arithmetic difference between the frequency of the incoming oscillations and the oscillations furnished by the oscillating detector tube.

The human ear is most sensitive to a note corresponding to 1,000 vibrations per second or electrically to a note produced by 500 cycles. Suppose the received signal was on a 200-meter wave length of 1,500,000 cycles. By adjusting the circuits so that the tube would oscillate at a frequency of 1,500,000 or 1,499,500, the best note would be 500 cycle pitch or a 1,000 vibration note.

This beat method of reception is used to receive undamped or continuous wave signals and is called the "heterodyne" method. When the same tube is used to perform the functions of a detector and an oscillator, the method is termed the "autodyne" method.

PERFORMANCE TEST METHODS

Rules Are Drawn Up by Bureau of Standards for Investigation of New Apparatus.

Owing to the very large demand which has arisen for simple radio receiving sets, many retail dealers in other lines of work have taken up the handling of such equipment. It is very difficult for such dealers to decide whether sets offered by the manufacturers are of good or poor quality says Radio Merchandising. The whole art is so new and some of the questions involved are so technical that the problem presents considerable difficulties.

As a consequence, the Department of Commerce, and particularly the bureau of standards, has received a great many requests for tests of such apparatus. As it is impossible for the bureau to conduct all the work of this nature which it would be called upon to perform, it has drawn up rules covering performance test methods which are to be carried out by the Electrical Testing Laboratories of New York in co-operation with the National Retail Dry Goods association, the latter representing the retailers of radio receiving sets. As the work develops, suggestions regarding improvements of methods of testing will be subject to the approval of the bureau of standards.

The tests outlined include: Investigation as to the material and workmanship, the mechanical and electrical design, simplicity of adjustment, ruggedness, sensitivity, sharpness of tuning, wave length range and faithfulness of reproduction in radio telephone reception.

TIPS TO THE RADIOIST

Dr. Marconi cites as one of the future benefits of radio the ability of a man to talk with his wife without others being able to listen in. Some of us who live in apartments and have to listen to the nightly dialogues of the Jarr family will hope that they will arrange to use radio at no late date.

No better example of the versatility of radio can be cited than its use for transmitting Chinese music.

The city fathers of Newark, N. J., are framing a law to tax all possessors of radio aerials $1 a year.

It is reported from Washington that President Harding has a powerful radio set installed in the White House.

The barbers have evidently talked themselves out and are now resorting to radio so that their customers may feel at home. The wave with the shave.

Boon for Lighthouse Keepers.

Working in a lighthouse is a pretty lonely business in the busiest harbor or channel. The tower of a light house in a remote part of far-off Alaska is the last word in solitary confinement. The keepers of the lighthouses at the entrance to Bering sea are said to remain at their posts for three years at a time. They receive mail about once in ten months. What radio will mean in seclusion of this kind may readily be imagined.

Dance in Air to Radio Music.

Waltzing in the air to the music of the radiophone is described by one of the passengers of the flying boat Buckeye, who made the trip from Detroit to Cleveland. The receiving set used ched about 150 pounds, according ...ts of the airship company. In- ...arpieces were used instead ...eaker, because of the noise ...e engine.

But we ... life is earne... not its goal.

...cannas Doomed?

...e convinced post of- ... day of aerial an- ... receiving has passed. According to Superintendent J. C. Edgerton of the radio section, the department has been using "large vertica outside multiple turn loops," "underground horizontal loops" and "underground antennae," and eliminating much static interference. "The horizontal buried loop has been very successful," Superintendent Edgerton announced, "when well insulated and buried in water or very damp earth."

Medical Radio Calls for Ships.

Taking precedence over all but SOS calls, a new system of medical service and consultation by radio for ships at sea has been established by an American steamship company. This service, which is primarily designed to assist vessels not carrying medical officers, is free to the ships of all nations.

Legion Broadcast Station.

The first American Legion broadcasting station has been licensed to operate. It is owned by the Nebraska department of the Legion and the call letters WGAT have been assigned to it.

Short Jackets Have the Call

Some of the most notable successes among clothes have had as their basis a simple idea which must have occurred time and again to women all over the world, but we have become so accustomed to waiting for the mandates of fashion to come from fashion authorities that few women have the temerity to create models, or if they do create them they are afraid to wear their own creations, says a fashion writer in the New York Tribune. We have learned to wait for the cachet of some great maker to appear on a model before we accept it.

Almost every woman has felt the need of some sort of informal jacket on the order of a sweater to wear over lightweight, short-sleeved dresses. There was nothing that filled this need, especially for the summer. Most of the smart sweaters have, for the last few years, been made to slip on over the head, which practically made it necessary to arrange or rearrange the hair after the garment was put on.

Jackets Replace Coat Sweaters.

Then the sweater is such a close-fitting garment that it crushes the frock; consequently, it is hopeless as a jacket to wear over anything but a plain blouse where only the collars and cuffs show by being turned back over the sweater neck and sleeves. Then, too, the summer sweater usually is so thin that the ugly line of a short-sleeved dress shows half-way down the sleeve of the sweater.

Practically every woman knew that some sort of jacket was needed in place of the old-fashioned loose coat-sweater that did such good service in bygone years, but she waited patiently for the great designers in Paris to launch this idea. Her patience was rewarded by the clocki coats.

It may have been that there was no material sufficiently inspiring to the mind of the designer until Rodier brought out his fabrics in blistered effects. This would look like a reasonable supposition, since the various creators of clothes selected clocki almost simultaneously for the short separate jackets which they succeeded in popularizing almost over night, for the demand for these jackets is very great. It is not to be supposed that any one with any imaginative genius would stop with one sort of material for a new type of coat, so they have gone on from this material to others.

Two-Tier Pockets on Model.

Notable among some late models in the short separate coat is one in white satin clocki, trimmed with a border of black satin poppy petals loosely applied. This jacket is smart when worn with a black crepe marocain skirt and a black outdoor hat. It makes a most distinguished costume, and one which will be eagerly seized upon by the woman who is desirous of getting away from the set type of sweater and skirt and sweater and overblouse so universally worn.

Madame Jenny, who so successfully caters to the well-dressed American, arate coat as exploited in the fashions of the moment. The black background sets off to excellent advantage multicolored embroidery on the sleeves, collar and pockets.

One would naturally expect that something more practical in material, but similar in cut, should follow in the wake of these glorified outing jackets because, when a fashion suddenly flames up almost over night, as it were, and takes such a tremendous

Knitted Jacket and Skirt in Black and Colored Wool.

hold on the public in general it has somewhere in its composition some of the qualities which make a best seller, and no progressive dressmaker or manufacturer is going to relinquish such a profitable garment until every idea that it contains has been exploited to the utmost. So for the autumn these magnificent coats will be followed by more practical ones of wool, many of them knitted after the fashion of the old-time sweater-coat.

Rabbit Competes With Monkey's Pelt.

Several great dressmakers have gone still further with this idea and have made skirts to match these jackets, especially in the wool things. Worth has a model with the jacket knitted in wool in plaid effect—gray, white and black. The shawl collar on the jacket and the cuffs and girdle are of gray.

Molyneux shows a knitted jacket in white wool with pipings, buttons and belt of red leather. With this may be worn either a red or white wool skirt. Another interesting jacket is of black and rust-colored wool in chine effect, with a trimming of black cire braid and a belt of black suede.

Among the most luxurious of the short coats are those of India cashmere trimmed with fur. Frequently the fur is monkey skin. There is a vogue for rabbit dyed to represent squirrel, chinchilla and kolinsky on short coats.

At the beginning of a new season the seemingly small details of dress play an important part. Vital questions, such as the silhouette, are not definitely settled. So many ideas are afloat as an aftermath of the French openings that it is unwise to choose such an important thing as a suit or a dress without a good deal of careful consideration, so women depend on those things known as the accessories of dress to give newness to their costumes.

Now one may freshen one's wardrobe by buying new collars and girdles, or perhaps a few bits of the costume jewelry which is in fashion's limelight at the present time.

There are any number of new collars, both of lingerie and of ribbon, which are made to fit the various shaped necklines in favor. Many of these are so unusual that a last season's dress or suit jacket may be metamorphosed by the addition of one of them.

White lingerie collars in plain and frilled effects are particularly smart when offset by black. Fine thread embroidery done in black is often used. A further touch of black is sometimes added by a bow of ribbon or perhaps a long streamer.

The Suit That Is Knitted of Beige and Brown Wool.

has found her greatest success in the separate coat in a model developed in white satin clocki trimmed with black suede, which takes the form of a border around the collar, pocket bindings and bands on the sleeves. She varies from the usual coat pocket by making the pockets in two tiers, that is, two on the right side just above the hip, one directly above the other, and she repeats this treatment in breast pockets.

No great dressmaker has overlooked clocki in making up her mid-season or early autumn models. A two-piece suit with hat to match by Worth is developed in this material in citron yellow, a shade frequently used in suits earlier in the season and now prominent in both suits and jackets.

A very striking jacket in black zenanna is typical of the short, sep-

FASHIONS FOR THE FALL SEASON

Conservative Line With Color of Somber Tone; Novel Detail to Add Youthfulness.

At this time of the season, when darker frocks are appearing to remind the smart woman that it is already time to think of fall modes, it is not amiss to mention a few potent notes that promise places of prominence for fall.

Creators of costumes, of course, have been thinking and dreaming of them for months, and many beautiful things are already in evolution. The French openings have stressed points which will be style factors in the fall.

The really smart dress for fall wear on the street will be rather conservative in line, with the color probably of somber tone, while a bright motif or a novel detail will make it youthful in effect.

Wool crepe, wool rep, broadcloth and kasha will be seen, varying in interesting details, such as inset plaits, cape treatments and smart collar developments.

Fashion Note.

Not too much embroidery—this is the fancy of moment. A gown looks a little strange with only half a dozen bits of embroidered motifs upon it, after the many months of elaborately decorated girdles, bodices and panels. The only ornamentation upon one dinner dress of fawn chiffon was an embroidered dahlia in shades of red and rose in the middle of the front panel, just above the hem. Another dahlia was posed high on the plain bodice, near the left shoulder.

Brown.

Get ready for a brown frock in your autumn wardrobe, for it is going to be the color leader. Already the smartest turbans, frocks, suits and blouses are being shown in all shades, ranging from tan to a deep sepia.

IMPROVED UNIFORM INTERNATIONAL

Sunday School Lesson

(By REV. P. B. FITZWATER, D. D., Teacher of English Bible in the Moody Bible Institute of Chicago.)
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LESSON FOR OCTOBER 1

BIRTH OF JOHN THE BAPTIST

LESSON TEXT—Luke 1:5-23, 57-63.

GOLDEN TEXT—He shall be great in the sight of the Lord, and he shall drink no wine nor strong drink.—Luke 1:15.

REFERENCE MATERIAL—Isa. 40:3-5; Mal. 4:4-6.

PRIMARY TOPIC—An Angel Brings Good News.

JUNIOR TOPIC—The Birth of John the Baptist.

INTERMEDIATE AND SENIOR TOPIC—Preparation for the Coming of Christ.

YOUNG PEOPLE AND ADULT TOPIC—The Place and Work of John the Baptist.

We are today entering upon a six months' course of study in the Gospel of Luke, whose general subject is "Jesus the World's Savior." Today's lesson concerns the birth of John the Baptist, the forerunner of Christ.

I. The Parents of John the Baptist (vv. 5-7).

1. When They Lived (v. 5). "In the days of Herod the King." They lived in a day when ungodliness was rife. The priesthood was very corrupt and the ruling classes were wicked. Zacharias and his wife lived in a time when it was not so easy to be godly.

2. Their Character (v. 6). They were righteous before God. To be righteous before God is a high tribute. Many appear to be righteous before men who are not righteous before God. Their lives were so mated that they walked in the commandments of the Lord blameless. How beautiful it is when husband and wife are united in the Lord and walk together in fellowship with God. The highest in wedded life can only be attained when both are united in Jesus Christ. Their practical living was manifested in obedience to God's commands.

3. They Were Childless (v. 7). Though this godly couple were well mated and they possessed the joy of the Lord in their souls, there was a real lack in that home. No home is quite ideal into which no child has come to gladden the hearts of the husband and wife.

II. The Birth of John Promised (vv. 8-17).

1. By Whom (v. 11; cf. v. 19). The angel Gabriel appeared and made known the good news to Zacharias. This exalted being, the special messenger of God, was sent to make this disclosure.

2. When (vv. 8-14). While officiating as priest this good news came to him. Zacharias must have been definitely praying about this very matter (v. 13). As he burned incense, which typified prayer, the multitude without were praying.

3. Characteristics of the Child (vv. 15-17). (1) Shall be great in the sight of the Lord (v. 15). Though the people did not greatly esteem him he was highly esteemed by the Lord. This is infinitely better than if he had been greatly esteemed in the eyes of men or in his own eyes. This is the esteem for which we all should long and pray. (2) Shall drink neither wine nor strong drink (v. 15). The child shall become a Nazarite, separating himself from the sensuous things and dedicating himself to the service of the Lord. (3) Be filled with the Holy Ghost (v. 15). The energy of the divine Spirit would enable him to lead the people to repentance (v. 16). (4) Shall go in the spirit and power of Elijah (v. 17). In this power he was to prepare the people for the coming of the Savior and the salvation which He was to bring.

III. Zacharias Asking for a Sign (vv. 18-23).

Although the aged priest was earnestly praying for the salvation of Israel the gracious promise of the angel, which was the beginning of that salvation, staggered his faith. He was unable to believe that that for which he fondly hoped and prayed would be realized. The angel gave Zacharias a sign. He was smitten with dumbness which was to continue until the fulfillment of the promise. Because he refused to praise God in faith for this gracious promise God caused his tongue to be silent until the promise was fulfilled and his lips could open in thanksgiving and praise. Though he was thus rebuked, at the same time his faith was strengthened by the manifestation of the supernatural. God wants us to trust Him, to believe his promises, no matter how contrary to reason they may seem.

IV. The Promise Fulfilled (vv. 57-63).

When the time came for the birth of John, Elizabeth brought forth a son and the neighbors rejoiced with her. On the eighth day they circumcized the child and gave him a name according to the instruction of the angel (v. 13). The name John was contrary to the family custom. By means of writing Zacharias made known the name which he would have by divine instruction. At this time God opened the mouth of Zacharias and he offered up praise.

God Will Repay.

If another is unjust or injurious, has not God said He would repay? But we may think Him slow. We may doubt if He will remember and attend to our matters. So we use our hands and our tongues to give others what we feel they deserve. We doubt God and make things worse. "Be long suffering toward all," following the example of Jesus, "Who reviled not again; when He suffered threatened not; but committed Himself to Him that judgeth righteously."

Humbling the Haughty.

Behold, the Lord, the Lord of hosts, shall lop the bough with terror; and the high ones of stature shall be hewn down, and the haughty shall be humbled.—Isaiah 10:33.

Youth and Age.

In my youth I thought of writing a satire on mankind; but now in my age I think I should write an apology for them.—Walpole.

Lenity and Mercy.

When lenity and mercy play for a kingdom, the gentler gamester is the soonest winner.—Shakespeare.

Heaven Often Smites.

Heaven often smites in mercy, even when the blow is severest.—Joanna Baillie.

SHEEP-KILLING DOG IS MENACE

Control by Legislation Is Urged by United States Department of Agriculture.

MICHIGAN LAW IS FAVORED

Good Points of Measure Would Be Valuable to Other States Not So Well Protected, Authority Asserts.

(Prepared by the United States Department of Agriculture.)

The sheep-killing dog is one of the greatest menaces to the sheepraising industry in the farming regions, says the United States Department of Agriculture, in Farmers' Bulletin 1265, Sheep-Killing Dogs, by M. W. Coll, just off the press. All but five of the 29 pages are devoted to a discussion of the control of dogs by legislation and to digests of dog laws of the 48 states. Special attention is given to the Michigan law, which is thought to have many good points that might well be adopted by other states.

More Dog Laws Needed.

The sheep industry in this country has had many ups and downs in the last 50 years, and in 1922 there were

He Should Be Protected.

only 36,000,000 sheep in the country as compared with 64,000,000 in 1903. This is a decrease of 43.7 per cent during a period when the population increased steadily. It is hardly probable that dogs are responsible for such a reduction, but, in the opinion of the author, there would be many more sheep in a great many farming sections if there were more good dog laws backed up by public opinion. The possibility of producing early-maturing lambs from a maximum of pasturage and inexpensive roughages, and the country's need for an increased supply of meat and wool, he cites as reasons why sheep production should be one of the most profitable enterprises of the farm.

Bulletin Is Available.

In addition to the discussion of laws, the bulletin devotes some attention to the habits of sheep killers, to dog-proof and wolf-proof fences, and suggests how dog lovers may aid in preserving the reputation of the respectable members of the species. The bulletin may be obtained free by addressing the Department of Agriculture, Washington, D. C.

INTEREST IN BETTER STOCK

Purebred-Sire Movement Is Making Rapid Growth; Enrollment Passes 8,000 Mark.

With the growing understanding of the utility value of purebred live stock and especially purebred sires, the list of persons enrolled in the "Better Sires—Better Stock" campaign is rapidly increasing. The middle of August it passed the 8,000 mark, signifying that many persons have filed statements with the United States Department of Agriculture that their live-stock breeding operations will be conducted henceforth on a purebred-sire basis. This includes all classes of domestic live stock, including poultry.

In some counties of limited area the number of farms is relatively small. Gordon B. Nance, county agent of Oldham county, Kentucky, points out, however, that although his county has only 1,098 farms, 10 per cent of the farmers have signed enrollment blanks, which signifies active participation in systematic live-stock improvement work. Other counties in which 10 per cent or more of the farmers are using purebred sires exclusively are: Pulaski county, Virginia, 52 per cent; Kittitas county, Washington, 18 per cent; Greene county, Ohio, 13 per cent; and Orange county, Virginia, 10 per cent. In this connection the bureau of animal industry points out that the proportions are for all farms and that the percentages for farms in which live stock is the principal market product probably would be much higher.

DODDER WILL HARM ALFALFA

Where Farmer Is Planning to Let Crop Stand for Seed It Is Wise to Look for Weeds.

If you are planning to let alfalfa stand for seed look your field over for dodder. Once is not enough. It should be done several times before cutting. Alfalfa seed containing dodder seed is unsalable in some states and is discriminated against in all markets. It is impossible by any known method to free alfalfa seed of the large-seeded dodders. The only practical procedure is to see that the field is free from this pest.

Give Alfalfa a Chance.

After the alfalfa crop has been cut for hay, hogs or other stock should not be turned in too soon. The crowns of the plant are likely to be injured if the stock is given a chance to eat the young tender shoots too closely. Often this close feeding permanently injures, or even kills, the plants. Let it have a good start if you intend pasturing. It is better practice, however, to provide other crops for pasturage and use the alfalfa for hay.

Water and Shade for Chicks.

Young chickens need plenty of fresh clean water to drink and plenty of shade in the hot weather. Many chicks die on account of lack of water.

Dirty Eggs Cost More.

Dirty eggs cost the producer money. The taste of an egg may not be affected by the amount of dirt, but the selling value is directly affected.

Too many poultry raisers underestimate the value of oats for hens. It is an excellent summer feed.

HOW THE GULLIES CAN BE RECLAIMED

Plowing-in and Seeding to Grass or Timber Recommended.

Farmers Should Build Soil-Saving Dams That Check Erosion and Cause the Filling of Space With Silt.

(Prepared by the United States Department of Agriculture.)

Gullies are a source of great loss to the farmer. They ruin fertile land, interfere with farm operations, undermine buildings, encroach on public roads, endanger the life of stock and mar the beauty and lower the market value of the farm. They can be prevented by increasing the absorptive capacity of the soil by tilling, protecting the surface from erosion by proper cultivation, and by conducting the surplus water from the field at a low velocity. Gullies can be reclaimed by plowing-in and seeding to grass or timber, or by building soil-saving dams that check erosion and cause the filling of the gully with silt.

In checking gullying, the first thing is to stop it at the head. If possible, the water should be turned into a natural water-course before it reaches the head of the gully. In shallow gullies, a dam built close to the head will give a fill of soil in a short time. In deeper gullies, a longer time is necessary according to the condition and amount of washing. Brush and straw, firmly fastened down, make a good dam for stopping erosion.

In regions where timber and brush are plentiful good results in filling gullies have been obtained by the use of brush dams. In hill-side gullies where the flow of water is small the dams are commonly built of loose brush sometimes weighted down with logs. Where the flow is enough to overtop the dam, the brush can be held down by crosspieces and stakes. Simply dumping the brush into a gully will not give good results.

Before beginning to reclaim a gully with soil-saving dams, the entire work of reclamation should be planned. If only a part of the work is planned it may not fit into the complete reclamation work which may be undertaken later. After the head dam is in place and erosion checked, a number of low, temporary dams can be used in a wide, shallow depression that will gradually fill. If the gully ends in the side of a deep drainage channel, the lower end must be built up with a high dam. The higher the dams the fewer will be required, but several low dams are less costly than one high one and are more easily constructed.

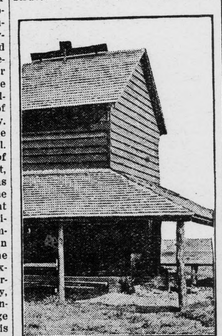
POTATOES IN TOBACCO BARNS

Farmers Who Grow Both Crops Can Save In Their Storage Building Equipment.

(Prepared by the United States Department of Agriculture.)

In sweet potato areas in tobacco territory, farmers who grow both crops can save in building equipment by using their flue-heated tobacco barns for the storage of potatoes. The changes needed and the methods of management that have been found good when the buildings are used for the two purposes are described by the United States Department of Agriculture in Farmers' Bulletin 1267, Utilization of Flue-Heated Tobacco Barns for Sweet Potato Storage.

Many farmers who do not raise a large acreage of sweet potatoes feel that the expense of a special storage structure is not justified, although


The Tobacco Barn.

through the use of pits, banks, or cellars they have been losing a large part of the stored crop. But if some building which serves another important purpose can be remodeled so as to meet both needs a greater part of the sweet potatoes produced can be saved at a small outlay of money. On farms which have flue-heated tobacco barns or similar buildings that serve their main purpose before the potato harvest, this saving is practical.

The bulletin contains detailed plans for converting tobacco barns, bill of materials for structures of a certain size, methods of storage-house management, and descriptions of a number of varieties of sweet potatoes. Copies may be obtained free by addressing the department at Washington, D. C.

Caring for Harness.

Harness that is too light or of poor quality cannot give many years of service. In selecting harness it is more economical to get a set that is too heavy than one which is too light for the work required. Make sure especially that the reins, breeching, holdback straps, tugs or traces, bellybands, and yoke straps are strong. A runaway team cannot be controlled with weak reins, nor will weak tugs and straps stand heavy work. No portion of the harness should show cracks on the grain side when the leather is sharply bent.

When a self-feeder is used plenty of water should be supplied, allow a sufficient quantity of green feed such as rape, grass or alfalfa so that the hogs can have a balanced ration.

Sheep equalize labor on the farm, requiring least in summer when labor is scarce and high, and most in winter when labor is usually plentiful and cheap.

Painting roosts and nests with a coal tar disinfectant will rid the hens of troublesome mites.

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We know says that it's his job to please his customers. He is 100 per cent right. It's our job to please merchants by providing the kind of printing that is wanted. Try us and see what we can do.
We Make Good

You Say You Can't Advertise?
That's what others have said and all of a sudden found some competitor was *doing* what they thought they couldn't do. And getting away with it.
Get the bulge on your competitors by telling your story in an attractive manner so it will be read. You'll get the results.
We Are Anxious to Help

Good Printing
THE kind of printing that pays dividends is the kind you should have. Pale, muddy, poorly arranged printed matter is worse than none. The quality of your business is often judged by the quality of your stationery—inferior printing gives an impression of cheapness that is hard to overcome, while good printing carries with it a desirable suggestion of quality.
We produce only *Quality Printing*. Whether you want an inexpensive handbill or a letterhead in colors, if you order it from us you will be sure of getting good work. We have the equipment and the "know how" that enables us to get out really good printing—printing that impresses people with the good taste of its users. That is the only kind of printing that
Pays

Boon for Lighthouse Keepers.

Working in a lighthouse is a pretty lonely business in the busiest harbor or channel. The tower of a light house in a remote part of far-off Alaska is the last word in solitary confinement. The keepers of the lighthouses at the entrance to Bering sea are said to remain at their posts for three years at a time. They receive mail about once in ten months. What radio will mean in seclusion of this kind may readily be imagined.

Dance in Air to Radio Music.

Waltzing in the air to the music of the radiophone is described by one of the passengers of the flying boat Buckeye, who made the trip from Detroit to Cleveland. The receiving set used ched about 150 pounds, according ...ts of the airship company. In- ...arpieces were used instead ...eaker, because of the noise ...e engine.

But we ... life is earne... not its goal.

...cannas Doomed?

...e convinced post of- ... day of aerial an- ... receiving has

Medical Radio Calls for Ships.

Taking precedence over all but SOS calls, a new system of medical service and consultation by radio for ships at sea has been established by an American steamship company. This service, which is primarily designed to assist vessels not carrying medical officers, is free to the ships of all nations.

Legion Broadcast Station.

The first American Legion broadcasting station has been licensed to operate. It is owned by the Nebraska department of the Legion and the call letters WGAT have been assigned to it.

JOB WORK A SPECIALTY

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TURKISH FORCES AT BRITISH LINE

Situation Nears Climax as Turks Reach Chanok

DICTATORS RULE GREECE

Turkish Forces Now Practically Against British Entrenchments—Provisional Military Government Set Up In Athens.

Constantinople.—Events are surely approaching a climax. The Turks have occupied the entire neutral zone on the Asiatic side of the Dardanelles, with the exception of the Chanak area, around which they have established infantry units in a semi-circle, virtually investing the British lines.

The Turkish cavalry squadrons are retiring, and the British troops, who are in strong force at Chanak, are ready for what may happen.

In these circumstances General Harington, the British commander-in-chief, has sent a wireless message to Kemal Pasha at Smyrna, asking for an immediate personal meeting. He leaves the choice of place to Kemal, whose reply is expected momentarily.

Yussuf Kemal Pasha, the Nationalist Foreign Minister, is understood to have gone to Angora to submit the Allied joint note to the Nationalist Assembly, but in the meantime Turkish concentrations are being pushed with the greatest speed.

British reinforcements are reaching here and the threatened area. The super-dreadnoughts Revenge and Revolution, the most powerful fighting machines afloat, have arrived in the Dardanelles, while a battalion of North Staffordshires and 1,000 men of the British air forces landed and marched through Constantinople with bands playing. Their presence has helped to bring about a reassuring effect.

The Turkish instructions to the men in the Chanak sector are to advance the farthest possible without meeting resistance. They are now practically against the British entrenchments, and obviously the situation cannot be indefinitely prolonged.

Notwithstanding the Kemalist concentrations around Shanak, however, the British are confident of holding their lines against all odds. They declared that their flanks are well protected by the fleet. The battleships with their 16-inch guns can sweep the whole area around Chanak for a distance of 20 miles, and it is possible for the British to dismount some of their giant naval guns and use them for shore batteries.

The Turks at present have only machine guns in the Chanak area. If they brought up heavy artillery the security of Chanak might be seriously challenged, the British admit, but the entrenchments in this sector are said to be more efficient than any used in the World War. Since September 11, 2,000 men from the labor squad, 1,000 from the fleet and several thousand from the army have been steadily building trenches and setting up gun emplacements.

London Takes Grave View.

London.—The British Cabinet held three successive meetings. This fact alone is sufficient comment upon the gravity of the situation in the Near East.

The Greek revolution, which was a military and naval coup, seems to have been carried out with surprising swiftness and completeness. Information regarding Constantine is meager, but one report had it that he was a prisoner of the revolutionists.

INSANITY MRS. PHILLIPS' PLEA

Wife Who Beat Young Widow To Death Soon To Face Trial.

Los Angeles.—Insanity will be the defense of Mrs. Clara P. Phillips, charged with having beaten Mrs. Alberta Tremaine Meadows, 20-year-old widow, to death with a hammer. That was disclosed when the public defender, who will represent Mrs. Phillips at her trial, set to open October 20, submitted to the District Attorney's office interrogatories addressed to 13 persons residing in Texas. They included questions as to alleged lapses of sanity on the part of the defendant.

MONSTER DEVILFISH LANDED.

Creature Captured From Gulf Weighs Over 2,000 Pounds.

Gulfport, Miss.—A devilfish, captured by two shrimp fishermen, measured 18 feet across and 13 feet in length. Estimates of its weight ranged from 2,000 to 3,500 pounds. Thirty-two men attempted to pull it up on the beach, but got only half of its body out of the water.

GEORGIANS LYNCH NEGRO.

Alleged Assailant Of White Woman Was On His Way To Trial.

Sandersville, Ga.—Jim Johnson, negro, was taken from officers and lynched while en route to Wrightsville to stand trial, according to word received from Deputy Sheriff Wood, who had the prisoner in charge. The negro was charged with attacking a white woman.

WOULD CANCEL CITIZENSHIP

New York.—The United States Government began suit here for cancellation of the naturalization of Ferdinand Hansen, writer and friend of Jeremiah J. O'Leary, charging that he fraudulently obtained the papers and that he violated his oath of allegiance after he became a citizen. Hansen now is in Germany, where he is reported to be conducting a propaganda bureau.